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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,783	04/06/2006	Hideki Kitamura	4007561-186661	2566
23570 7590 12/06/2011 PORTER WRIGHT MORRIS & ARTHUR, LLP INTELLECTUAL PROPERTY GROUP 41 SOUTH HIGH STREET 29TH FLOOR COLUMBUS, OH 43215				
EXAMINER				
FROST, ANTHONY J				
ART UNIT		PAPER NUMBER		
1798				
NOTIFICATION DATE		DELIVERY MODE		
12/06/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary**Application No.**

10/574,783

Applicant(s)

KITAMURA ET AL.

Examiner

ANTHONY J. FROST

Art Unit

1798

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-4 and 8-25 is/are pending in the application.
- 5a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-4, 8-13 and 20-25 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-CB00)
Paper No(s) Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s) Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Response to Amendment

1. Amendments were received 11/4/10. Claim 1 is amended. Claims 2-4, 12, 13 are as originally filed. Claims 8-11 and 20-25 are as previously presented. Claims 5-7 and 26 are canceled. Claims 14-19 are withdrawn. Claims 1-4, 8-13, 20-25 are currently under examination on the merits.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. The phrase "all thermoplastic resins" lacks support from the specification and is therefore new matter. Page 19 of the application does not include support for any "all thermoplastic resins."

5. Additionally, there is insufficient support in the specification for the phrase "present in a proportion of 0 to 5 parts by weight ..." (claim 1, line 7). Page 19 of the application does not indicate that the compound may exist in a proportion of "0 to 5."

Additionally, it should be noted that although language was suggested by the previous Examiner, the original specification does not provide strict support for specifically "0 to 5" parts by weight, and therefore the suggestion is withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-4, 8-13 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (JP 07-085722), see Translation (NPL document U, see Examiner Cited art 10/01/08), in view of Kouyama et al. (U.S. 4,897,238 see Examiner Cited art 10/13/09) and further in view of Krone et al. (U.S. 4,937,032 see Examiner Cited art 6/4/10).

10. Regarding claims 1 and 20-24, Yoshida et al. discloses a semiconductive film having a composition of 5-40 parts conductive filler to 100 parts polymer ([0008]), inter alia poly ether ether ketone, ([0007]). Yoshida teaches that this film may be created by extrusion ([0010]). The conductive filler of Yoshida et al. is disclosed as being sold under the trade name "KETCHIEN black EC," which is believed to be the same as the instantly disclosed "Ketjen Black EC" (Example 1, Page 36). Yoshida et al. also discloses that the semiconductive film have a volume resistivity of between 10^{11} and 10^{12} ([0013]), with a variation of 1-10 times the minimum value, which overlaps the instantly claimed range (see also the discussion below of thickness variation, [0013]). The thickness is also disclosed as being 150 microns thick ([0012]). The carbon black used has a DBP oil absorption rate that reads on the claims (See Yoshida Claim 1).

Yoshida et al. does not explicitly disclose the product by process steps of claim 1. Kouyama et al., with is also directed towards extruded sheets made out of PEEK and resins substantially chemically equivalent to PEEK for the purposes of extrusion (C 1, L55-65, C8, L35-65). Kouyama et al. discloses that the extrusion occur with a lip

clearance of 0.5mm and a cooling temperature of 79 degree C, which is about 80 degrees C (C17, L30-40). The cooling conditions and extrusion methods of Kouyama et al. are disclosed as resulting in an amorphous film (C10, L30-40). One having ordinary skill in the art would have found it obvious to have used the lip clearance and cooling temperature of Kouyama et al. in the method of making the film from the composition of Yoshida et al. in order to impart desirably amorphous properties to the product. It should additionally be noted that the method of making a film as disclosed by Kouyama, would inherently result in a film with thickness variations such that the maximum value of the thickness being 1 to 1.3 times as thick as the minimum thickness. Absent a showing to the contrary, the film of Yoshida created in the manner of Kouyama would result in this further tailoring of the range already disclosed by Yoshida (variation of 1-10 times the minimum value, see Yoshida [0013]), and therefore the modified Yoshida reads on the range of thickness of the presently examined claim.

Regarding the "Folding Endurance," considering the substantially identical composition and method of forming the film of the disclosed semiconductive resin of the prior art with the instantly disclosed examples (i.e. Example 1, page 36-37), the semiconductive film of modified Yoshida et al. would exhibit the instant claimed properties. Regarding the consistency of the film's thickness, it would have been obvious to one having ordinary skill in the art to have maintained the most consistent thickness along the length of the film in order to minimize variation in the semiconductive properties of the belt.

Regarding the "at least one other thermoplastic," Kouyama discloses that

additives can be incorporated into the PEEK resin mixture (C9, L55-65) but does not go into any specifics as to how much. Krone et al. which is directed towards a PEEK containing composition (C5, L 10-45) discloses similar additives to those reference in Kouyama and specifically mentions that thermoplastic impact modifiers and elastomers can be used as additives at up to 15 percent by weight. Hence it would have been obvious to have added the engineering thermoplastic impact modifiers and elastomers as additives at less than 15% as taught by Krone to the composition of modified Yoshida to adjust the impact strength and elastomeric properties of the overall composition. Also, independent of the Krone reference, one having ordinary skill in the art would have found it obvious that the additive mentioned in Kouyama would include some thermoplastic additives and that they would be present in a relatively small amount compared to the main components of the film (i.e. an amount less than 5%). Finally, because the proportion of other thermoplastic resins may be 0, the other thermoplastic resin may alternatively be interpreted to not be present.

11. With respect to claims 2-4, regarding the various physical properties (tensile, tension and tear strength) as with the folding endurance, given the substantially similar ingredients and process conditions, the prior art's film would possess these properties.

12. With respect to claim 20, the carbon black used has a DBP oil absorption rate that reads on the claims (See Yoshida Claim 1). With respect to claim 21, Yoshida et al. also discloses that the semiconductive film have a volume resistivity of between $10A11$ and $10A12$ ([0013]), with a variation of 1-10 times the minimum value, which overlaps the instantly claimed range. With respect to claim 22, as explained with reference to

claim 1 above, given the substantially similar ingredients and processing conditions of the film of the prior art the instantly claimed folding properties would be present.

13. With respect to claims 23 and 24, Kouyama discloses the instantly claimed processing conditions. Kouyama et al. discloses that the extrusion occur with a lip clearance of 0.5mm and a cooling temperature of 79 degree C, which is about 80 degrees C (C17, L30-40).

14. Regarding claims 8-13, modified Yoshida et al. discloses all of the limitations as set forth above. Additionally, Yoshida et al. discloses that the conductive filler is carbon black and has a DBP in the range of 30-700 ml (i.e. B and A with DBP of 200-700 and 30-180 ml, [0004]). The carbon black used "KETCHIEN black EC," is believed to be the same as the instantly disclosed "Ketjen Black EC" (Example 1, Page 36) and is an acetylene or oil furnace black. Given the substantially similar type of carbon black (i.e. trade name and DBP ratio) the conductive filler of Yoshida et al. will exhibit the claimed volume resistivity and volatile matter content as instantly claimed in claims 8-10. With respect to claims 11-13, Yoshida et al. also discloses that the semiconductive film be used as a charge control member either as part of a tuber roller or a semiconductive belt ([0010]).

15. With respect to claim 25, the instantly claimed chemical structure is that of a poly ether ether ketone which is disclosed in all the prior art references (See Yoshida, [0007]). In Kouyama when PEEK is combined with PTK the PEEK is not disclosed as being a copolymer and is therefore a homopolymer.

Response to Arguments

16. Applicant's arguments filed 11/4/10 have been fully considered but they are not persuasive. The substance of these arguments is considered below. It is believed that each of Applicant's arguments have been considered in full and are addressed in the rejections above or in the responses below.

17. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

18. Applicant argues that Yoshida does not teach a film created by extruding from a die, however at [0010], Yoshida teaches that the conductive resin may be formed into a film or sheet through extrusion, which therefore does not teach away from the processing of a film as taught by Kouyama.

19. Applicant additionally argues that Yoshida does not teach the cooling temperature range and the lip clearance of the presently examined application. But as shown above, Kouyama does disclose these claimed features.

20. Regarding the amount of thermoplastic resins other than the PEEK, Applicant argues that the amendment ("all thermoplastic resins ... poly(ether ether ketone)," please see Applicant's Remarks dated 11/4/10, page 12), in accordance with the previous Examiner's suggestion, eliminates Kouyama as a reliable obviousness reference. However, the amendment is not strictly in accordance with the Examiner's

suggestion, as the Examiner's suggestion did not include the phrase from "0 to 5 parts." This phrase implied that the other thermoplastic resin may be not present in the composition. Therefore Kouyama is still relevant and the obviousness rejection remains appropriate. Applicant further argues that "Kouyama discloses technical matter relating only to the use of poly(arylene thioether-ketone) and does not contribute anything specifically to analysis of presently amended claim 1." Examiner respectfully disagrees. Kouyama teaches that blending of thermoplastic resins is economically advantageous (col. 9 lines 20-30).

21. Applicant again argues that their cooling temperature yields unexpected results. Regardless of the substance of this assertion, such a cooling temperature is known, as taught by Kouyama. Claim 1 has been amended to better conform to the data of Applicant's Declaration of 2/8/10, but this amendment has not obviated the previous obviousness rejection. Yoshida discloses a film with low variation of thickness ([0013]) and Kouyama teaches a process according to the one that has been claimed. Applicant has admitted (please see Declaration under 37 CFR 1.132 dated 2/8/10 and Applicant's remarks 2/16/10) that the decreases in variation of film thickness result from the method of cooling extruded film. As has been shown above, this cooling is disclosed by Kouyama. Therefore, the extruded film as taught by modified Yoshida would have variation of thickness properties reading on the presently claimed range.

22. Applicant additionally argues that because Kouyama discloses a process for the production of a poly(arylene thioether-ketone) film, it may not serve as a basis for an obviousness rejection. The Examiner respectfully disagrees. Despite the inclusion of

supplementary material suggesting that molecular chemistry is relevant to the rheology plastics and therefore to their processing (see Applicant's Remarks dated 2/16/10, page 16), Applicant has failed to show that these particular polymers would differ from each other with regard to the extrusion.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. FROST whose telephone number is (571)270-5618. The examiner can normally be reached on Monday - Friday; 8:00 - 4:30 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571)272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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